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EXAMINER				
LOTFREDO, JUSTIN E				
ART UNIT		PAPER NUMBER		
3744				
NOTIFICATION DATE		DELIVERY MODE		
06/11/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

### Office Action Summary

**Application No.**

10/553,864

**Applicant(s)**

BICHLER ET AL.

**Examiner**

JUSTIN LOFFREDO

**Art Unit**

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The amendment filed 2/24/2009 has been entered. New claims 24-44 are pending in the application. The previous 35 USC § 102 and 35 USC § 103 rejections of claims 1-23 are withdrawn in light of applicant's cancellation of claims 1-23.

#### ***Claim Objections***

2. **Claims 42-44** are objected to because of the following informalities:

Consider claims 42 and 43, which are each dependent on claim 32, wherein claims 42 and 43 recite "the flow deflection unit" (line 2). There is a lack of antecedent basis for this limitation in the claims, and to establish proper antecedent basis for the purposes of examination the examiner has interpreted claims 42 and 43 to each be dependent on claim 40.

Consider claim 44, which is dependent on claim 30, wherein claim 44 recites "the fluid-air heat exchanger" (line 3). There is a lack of antecedent basis for this limitation in the claim, and to establish proper antecedent basis for the purposes of examination the examiner has interpreted claim 44 to be dependent on claim 33.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 24-32, 35, 36, 39-41 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghodbane (US Patent No. 5,898,995) in view of Bailey et al. (US Patent No. 6,347,527 B1).

Consider claim 24. Ghodbane discloses a combined fluid-air heat exchanger (corresponding to the claimed refrigerant evaporator being a combined fluid-air evaporator) having at least two separate duct systems, an inner tube (12) and an outer tube (14) (col. 3, L 6-7), through which separate material flows (col. 5, L 8-9) can be directed, wherein at least one of the two duct systems (14) has a free surface to which

fins (30), which are brazed and fixed together to complete a rigid core (32), are attached (corresponding to the claimed lamellar plane elements being attached to the free surface) (col. 4, L 30-32; see Figure 8) which come into thermal contact with a directed air flow, and the at least two duct systems are at least partially in thermal contact with one another (col. 5, L 22; Fig. 8); a primary flowing medium (corresponding to the claimed refrigerant) is conducted through the space bound by the second pipeline (12) (corresponding to the second duct system), and a secondary medium (corresponding to the claimed exothermic fluid) is conducted through the jacketed space created by the first pipeline (14) (corresponding to the first duct system) (col. 5, L 25-32); wherein the refrigerant comes into thermal contact both with the exothermic fluid and also, using the lamellar plane elements (30) attached to the free surface, with the directed air flow (col. 5, L 21-32).

Ghodbane fails to disclose a heat pump comprising a refrigerant loop including the refrigerant evaporator, however Bailey et al. teach a heat pump system including a refrigerant loop having a refrigerant evaporator (10) (ABST; col. 7, L 19-45; Fig. 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the arrangement of the refrigerant evaporator disclosed by Ghodbane to be incorporated within a refrigerant loop as taught by Bailey et al. in order to provide refrigerant flow through a system to effectively exchange heat via the evaporator in order to condition a space.

Consider claim 25. Ghodbane discloses the two duct systems implemented in the form of a first pipeline (14) having a first pipe internal diameter  $d_1$ , in whose pipe interior

a second pipeline (12), having a second pipe internal diameter  $d_2$ , with  $d_2 < d_1$ , is provided, the first duct system being delimited by the second pipeline (12) and the second duct system being delimited by the first (14) and second pipeline (12), and the first pipeline (14) having a free pipe outside (col. 3, L 4-16; Fig. 8).

Consider claim 26. Ghodbane discloses fins (30), which are lamellar plane elements attached (brazed and fixed together to complete a rigid core (32)) to the pipe outside of the first pipeline (14) (col. 4, L 30-32; Fig. 8).

Consider claim 27. Ghodbane discloses the two duct systems implemented in the form of a shared pipeline, the pipeline having a pipe surface (see Fig. 8 below), and the pipeline has at least one internal partition wall, which divides the volume enclosed by the pipeline into at least two separate pipeline longitudinal parts and via which the at least two pipeline longitudinal parts are in thermal contact with one another. As disclosed by Ghodbane, the two fluid media are kept totally separate, but are thermally conductive to and from one another across the shared walls of the inner tubes (col.5, L 21-24).

Consider claim 28. Ghodbane discloses fins (30), which are lamellar plane elements attached (brazed and fixed together to complete a rigid core (32)) to the pipe outside of the first pipeline (14), i.e. the pipe surface (col. 4, L 30-32; Fig. 8).

Consider claim 29. Ghodbane discloses that the exothermic fluid is conducted through the first duct system, and a refrigerant is conducted through the second duct system (col. 5, L 25-32).

Consider claim 30. Refer to the rejection of claim 24. Ghodbane discloses the invention as claimed, but fails to disclose a ventilation arrangement having heat absorption comprising: a used air flow directed out of the building, which comes into thermal contact with an outside air flow via an air-air heat exchanger, whereby the refrigerant evaporator is in thermal contact with the used air flow, or the exothermic fluid circulating in the loop of a heat accumulator system.

Bailey et al. teach a ventilation arrangement for a structure having heat absorption from a stale air exhaust duct (24), which directs a used air flow out of the building, which comes into thermal contact with an outside air flow from fresh air intake (23) via an air-air heat exchanger (13), and a first valve unit (41) through which the circulation of the fluid through the accumulator (66), is regulated (corresponding to the claimed heat accumulator system) (col. 9, L23-48; col. 15, L 19; col. 16, L 34-35; Figs. 7 & 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the arrangement of the refrigerant evaporator disclosed by Ghodbane to be incorporated within a refrigerant loop as taught by Bailey et al. so that the exothermic fluid circulates in the loop of the heat accumulator system in order to provide refrigerant flow through a system to effectively exchange heat in order to condition a space, and to apply work to move heat via the heat pump by exploiting the physical properties of a refrigerant, thereby providing fresh, treated air to a space.

Consider claim 31. Ghodbane and Bailey et al. disclose the heat pump having an evaporator/condenser (10) which is connected downstream from the air-air heat exchanger (13) in the flow direction in the heated outside air flow and an intake air flow

which is directed into the building via duct (2), arises downstream in the flow direction from the condenser (10) (Bailey et al., col. 16, L 63; col. 19, L 4-5; Fig. 10).

Consider claim 32. Ghodbane and Bailey et al. disclose a first valve unit (41) provided in the loop of the heat accumulator system, through which the circulation of the fluid through the heat accumulator system can be regulated (Bailey et al., col. 9, L 34-35).

Consider claim 35. Ghodbane and Bailey et al. disclose connecting a liquid heat exchanger to a commercial building water source (corresponding to the claimed industrial water accumulator), which would therefore be thermally coupled to the heat pump and either in parallel or series with the condenser (10) disclosed by Bailey et al. (Bailey et al., col. 3, L 10-12).

Consider claim 36. Ghodbane and Bailey et al. disclose that the heat accumulator system includes a geothermal heat pump (corresponding to the claimed geothermal collector) (Bailey et al., col. 10, L65; col. 11, L 3-5).

Consider claim 39. Ghodbane and Bailey et al. disclose the loop being hooked to three-way valves, wherein one of the valves being the first valve unit (41), which is a four way valve, however first valve unit (41) operates using three flow paths for the fluid flow from the desuperheater (61) (therefore the first valve unit (41) corresponds to the claimed three way valve) (Bailey et al., col. 2, L 63; col. 9, L 23-48; Fig. 7).

Consider claims 40, 41 and 43. Ghodbane and Bailey et al. disclose a bypass valve (corresponding to the claimed a flow deflection unit), which is capable of switching off the evaporator/condenser (10), thereby either allowing or prohibiting the used air



flow to permeate the evaporator (Bailey et al., col. 17, L 16). This indicates that the used air flow is conducted in a fixed predefined quantity ratio, either all the way open or all the way closed, through the combined fluid-air evaporator. Since this evaporator/condenser (10) uses Freon and air, one having ordinary skill in the art would recognize the advantages of incorporating the combined fluid-air evaporator disclosed by Ghodbane.

4. **Claim 42** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghodbane (US Patent No. 5,898,995) and Bailey et al. (US Patent No. 6,347,527 B1) as applied to claim 40, and further in view of Wiseman (US Patent No. 5,291,182).

Consider claim 42. Ghodbane and Bailey et al. disclose the invention as claimed, but fail to disclose the flow deflection unit being a flow flap.

Wiseman teaches a flow deflecting rectangular flap (95) (col. 7, L 62), and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the flow deflection unit of the ventilation arrangement disclosed by Ghodbane and Bailey et al. to be implemented as a flow deflecting flap as taught by Wiseman in order to direct flow using a low cost yet effective flow directing component.

5. **Claims 33, 34, 38 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghodbane (US Patent No. 5,898,995) and Bailey et al. (US Patent No. 6,347,527 B1) as applied to claim 30, and further in view of Ghodbane et al. (US Patent No. 6,405,793 B1).

Consider claims 33 and 34. Ghodbane '995 and Bailey et al. disclose the invention as claimed, but fail to disclose a fluid-air heat exchanger in the loop of the heat accumulator system provided in the outside air flow in the flow direction before the air-air heat exchanger; or a second valve unit provided in the loop of the heat accumulator system.

Ghodbane et al. '793 teach a dual fluid heat exchanger (32) (corresponding to the claimed fluid-air heat exchanger), which can be in series or parallel with additional heat exchangers, provided in the outside air flow from fan (27) (col. 2, L 35; col. 4, L 29; Fig. 2); and a three-way valve (26) (corresponding to the claimed second valve unit) to regulate the inflow to the fluid-air heat exchanger (32) (col. 3, L 60). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ventilation arrangement disclosed by Ghodbane '995 and Bailey et al. to incorporate the fluid-air heat exchanger and second valve unit taught by Godbane et al. '793, whereby the second valve unit is provided in the loop of the heat accumulator system in order to improve the climate controlling capability of the system.

Consider claim 38. Ghodbane '995 and Bailey et al. disclose the invention as claimed, but fail to disclose a third valve unit which can regulate the inflow of the fluid-air evaporator in the loop of the heat accumulator system.

Ghodbane et al. '793 teach a valve (38) (corresponding to the claimed third valve unit), which can regulate flow through the system (col. 4, L 56). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ventilation arrangement disclosed by Ghodbane '995 and Bailey et al. to include a third

valve unit as taught by Ghodbane et al. '793 in the loop of the heat accumulator system in order to provide a reliable means to properly control and direct refrigerant flow through the system.

Consider claim 44. Ghodbane '995, Bailey et al. and Ghodbane et al. '793 disclose the heat pump providing an expanded refrigerant loop (Bailey et al., Fig. 7), thermally coupled to the fluid-air heat exchanger (32) (Ghodbane '793, col. 2, L 35; col. 4, L 29; Fig. 2).

6. **Claim 37** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghodbane (US Patent No. 5,898,995), Bailey et al. (US Patent No. 6,347,527 B1) and Ghodbane et al. (US Patent No. 6,405,793 B1) as applied to claim 33, and further in view of Christensen (US Pub. No. 2005/0061311 A1).

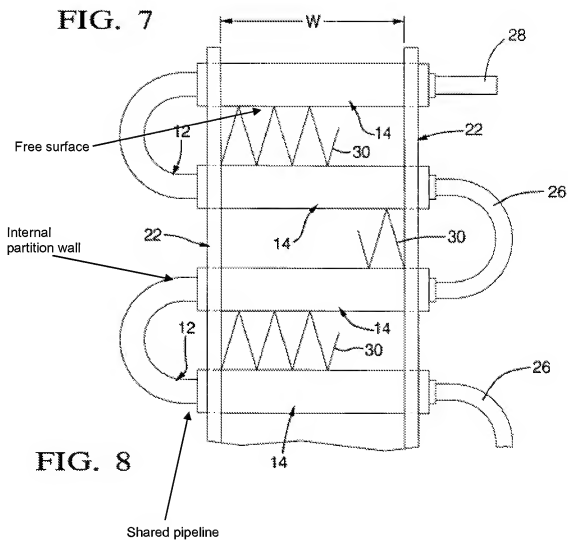
Consider claim 37. Ghodbane '995, Bailey et al. and Ghodbane '793 disclose the invention as claimed, but fail to disclose a solar collector that is permeated by a collector flow that can be connected to the fluid-air heat exchanger and/or the combined fluid-air evaporator alternatively or in combination with the fluid circulating in the loop of the heat accumulator system.

Christensen teaches solar collector panels which are permeated by an air collector flow, wherein the collectors are used for ventilation or as a medium for conveying heat to a heat exchanger (paragraphs [0001] and [0003]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ventilation arrangement disclosed by Ghodbane '995, Bailey et al. and Ghodbane '793 to

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incorporate a solar collector as taught by Christensen in order to provide an efficient, low maintenance source for heating while reducing energy costs and using clean, renewable energy.

Ghodbane – Figure 8



***Response to Arguments***

7. Applicant's arguments filed February 24, 2009 have been fully considered but they are not persuasive.
8. In response to applicant's argument (page 10) that "none of the applied references, either alone or in combination, disclose these [the claimed] features", the examiner has set forth a new grounds of rejection wherein the previously applied references combine to disclose applicant's claimed invention.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN LOFFREDO whose telephone number is (571) 270-7114. The examiner can normally be reached on M - F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler & Frantz Jules can be reached on (571) 272-4834 & (571) 272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Supervisory Patent Examiner, Art Unit 3744

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May 15, 2009